APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY D/B/A DOMINION VIRGINIA POWER **CASE NO. PUE-2001-00663**

For a certificate of public convenience and necessity for facilities in Fluvanna County: Two parallel 500 kV transmission lines to provide service to Tenaska Virginia Partners, L.P.'s electric generating facility

REPORT OF DEBORAH V. ELLENBERG, CHIEF HEARING EXAMINER

November 5, 2002

Virginia Electric and Power Company d/b/a Dominion Virginia Power ("Virginia Power" or the "Company") filed an application with the Commission on November 29, 2001, revised on December 4, 2001, for approval and certification of electric facilities in Fluvanna County. Virginia Power proposes to construct and operate two parallel 500 kV transmission lines, of approximately 0.91 mile, to provide service to a new 900 MW natural gas-fired combined-cycle power plant proposed to be constructed by Tenaska Virginia Partners, L.P. ("Tenaska") in Fluvanna County.[1] Approximately 0.76 mile of the right-of-way needed to construct both transmission lines is on property owned by Tenaska and the remaining 0.15 mile is on private property.

On March 22, 2002, the Commission issued an Order for Notice and Hearing. Therein the Commission docketed this matter, directed the Company to give notice of its application, set the matter for hearing before a hearing examiner, and directed Staff to investigate the application. The Commission scheduled a public hearing to receive public witness testimony for June 3, 2002, in Palmyra, Virginia, and a second public hearing for the purpose of receiving evidence relevant to the application for June 27, 2002, in the Commission's courtroom in Richmond.

On June 3, 2002, hearings were convened in Palmyra as directed by the Commission. Rebecca W. Hartz, Esquire, counsel to the Commission and M. Renae Carter, Esquire, counsel for the Company appeared at those hearings, but no public witnesses appeared to offer comment.

On June 27, 2002, a public hearing was convened in Richmond. Ms. Carter, James C. Dimitri, Esquire, and Jill C. Hayek, Esquire, counsel for the Company; and Ms. Hartz, counsel for the Commission appeared. Again, no public witnesses offered comment. The Company submitted an Appendix to its application which satisfies the Commission's guidelines for minimal requirements for transmission line applications. The Company also prefiled the direct and rebuttal testimonies of Mark S. Allen and Gail R. Lamm, and the direct testimony of Ashwani K. Vaswani.

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[1]The Tenaska plant was approved by the Commission. *Application of Tenaska Virginia Partners, L.P.*, Case No. PUE-2001-00039, Final Order (April 19, 2002).

Commission Staff filed a report sponsored by Michael W. Martin, with the Division of Energy Regulation. Counsel for the Company and Staff agreed to introduce the prefiled testimony into the record without causing the witnesses to come forward for cross-examination. Proof of public notice was marked as Exhibit A. Transcripts of the hearings will be filed with this Report.

SUMMARY OF THE RECORD

Tenaska received Commission approval to construct and operate a 900 MW natural gas-fired combined-cycle power plant in Fluvanna County in April of 2002. Tenaska requested the interconnection of that facility to the Virginia Power transmission system, and the Federal Energy Regulatory Commission ("FERC") mandates such interconnection upon the request of any independent power producer.[2] The Company studied Tenaska's request, and determined that the 500 kV transmission line between the Dooms and Elmont substations would not require any updating, but only a short rerouting to the proposed switching station to accommodate the request. Company witness Lamm described the proposed transmission project and the selection of the route for the line. Mr. Allen presented testimony describing the design characteristics of the proposed transmission line, and the electronic and magnetic field ("EMF") data. Mr. Vaswani discussed the planning department's analysis that led to the conclusion that the proposed 500 kV lines offered the best way to serve the new electrical load.

Virginia Power proposes to cut its existing Dooms-Elmont 500 kV transmission line, and loop new lines in and out of a new switching station as the most practical and least cost option for interconnecting the Tenaska facility. The new switching station is required for reliability and transmission protection purposes and is a standard installation for interconnecting generation.[3]

The proposed lines would tap into the existing Elmont-Dooms line 0.2 mile west of Route 680 and extend southwest approximately 0.63 mile on a 250-foot right-of-way to a Virginia Power switching station on the Tenaska property. The lines would then continue approximately 0.28 mile to the Tenaska plant. Tenaska will provide the property for the transmission lines and the switching station.[4] Approximately 800 feet of the proposed facilities will be located on the land of an adjacent private property owner, but Tenaska has acquired the necessary right-of-way across that property. That easement will be held by Tenaska with a sublease to Virginia Power. Tenaska initially obtained a 150-foot right-of-way from the private owner which was later expanded to 250 feet to provide adequate clearance for the two 500 kV lines.[5] Tenaska is located in the service territory of Central Virginia Electric Cooperative ("CVEC"), but CVEC has no objection to the transmission project.[6] The entire transmission line route is wooded, and there are no road crossings. There should be little or no visibility of the line from public rights-of-way,[7] and there are no homes within 500 feet of the proposed transmission line.

[2]Exhibits 6, at 1; and 7, at 1.
[3]Exhibit 6, Appendix at 1.
[4]Id. at 11.
[5]Id. at 14; Transcript 21.
[6]Exhibit 6, Appendix at 19.
[7]Exhibit 1, at 4.

The two proposed circuits will each be a single circuit 500 kV design and operation voltage, and will have a 2,913 MVA transfer capability. The proposed circuits will have three twin bundled phase conductors in a horizontal configuration, and a shield wire at each of two static locations on each tower. Mr. Allen offered testimony to more fully describe the facilities to be constructed. He testified that the towers for the new lines will be lattice type towers similar to those supporting the existing Dooms-Elmont line. The towers would average 131 feet in height and the approximate average span would equal 750 feet. The supporting structures will be approximately 131 feet in height. The cross-arm width will be approximately 84 feet. Galvanized steel towers will have a base width of 31.67 feet and the typical span length will be 1100 feet.[8] Mr. Allen also addressed EMF and testified that the calculated maximum loading field strengths are not likely to occur, but Virginia Power calculated the maximum EMF levels at the right-of-way edges when the proposed lines experience an operating voltage of 525 kV, the maximum voltage. A maximum magnetic field level of 191.42 mG was projected to occur at the edge of the right-of-way if the lines were operated at that maximum line capacity. The maximum electric field level would be 2.592 kV/m.

Mr. Vaswani testified that his responsibilities include planning for the orderly development of the Company's transmission and distribution systems, up to and including the 500 kV facilities. Alternatives involving 230 kV lines were rejected as impractical.[9] He testified that a 230 kV line between Bremo and Charlottesville is approximately two miles from the Tenaska site, but Virginia Power's standard 230 kV limit is inadequate to interconnect the Tenaska facility which will be a 900 MW facility.[10]

The desired in-service date for the new line is September 1, 2003, and the estimated construction time is six to eight months.[11] The estimated cost of the project is approximately $7,800,000,[12] but Tenaska will be responsible for all costs incurred.[13]

Staff reviewed the application and filed a report recommending approval.[14] Staff confirmed that FERC regulations obligate Virginia Power to provide an interconnection at the request of an independent power producer, and Virginia Power provided Staff with a copy of the executed Generator Interconnection and Operating Agreement ("Interconnection Agreement") between Virginia Power and Tenaska covering the proposed project. That agreement has been filed with the FERC.[15]

Staff witness Martin described the project, the corridor, the interconnection, and the switching station. He reported that the line will be constructed to meet or exceed all requirements of the 2002 National Electrical Safety Code. Staff confirmed that the construction project is expected to require six to eight months to complete, and the Company seeks a desired in-service date of September 1, 2003. Staff observed that the Interconnection Agreement provides for an

[8]Exhibit 6, at 22.
[9]Exhibit 3, at 3.
[10]Id.
[11]Exhibit 6, Appendix at 6.
[12]Id. at 7.
[13]Id. at 8.
[14]Exhibit 7.
[15]Id. at 1.

April 1, 2004, commercial operation date for the Tenaska plant, but the Company advised Staff that the line will likely be built in the spring or fall of 2003, off-peak seasons, when system load is relatively low, to minimize the impact of the estimated planned three-week outage of the Dooms-Elmont line.

Staff also reported that the system impact of interconnecting the Tenaska plant with the Dooms-Elmont line was studied by Virginia Power. The generation facility study report, dated March 7, 2002, concluded that the addition of the plant will neither cause any overloading, nor require changes in system protection. Thus, no network upgrade facilities would be needed.[16] Staff also observed that the Company expected that looping the Dooms-Elmont line to accommodate the interconnection would have no significant adverse impact upon the normal operation of the Dooms-Elmont line. The only new type of potential outage that would be introduced by interconnecting the plant would be a failure within the ring bus at the new switching station, a rare event, according to the Company. The Company actually expects the reliability of the total line to improve on a per-mile basis when the line is split into two segments, since any interruption event would likely affect only one of the segments, leaving the other in service.[17]

Staff reported, however, that with the plant in operation, the Dooms-Elmont line is expected, at current projected load growth, to reach its capacity 11 years earlier than previously projected, or in 2016 rather than 2027.[18]

Staff advised that although Company concluded that the proposed interconnection is the only feasible interconnection for the plant, there are three other transmission lines at lower voltages near the plant: the Charlottesville-Bremo 230 kV line, the Bremo-Cunningham 115 kV line, and the Bremo-Sherwood 115 kV line. Staff concurred that those lower voltage transmission lines were not adequate to connect the 900 MW Tenaska plant to the Virginia Power system. Staff also advised that the proposed route is not the shortest distance from the generating plant to the Dooms-Elmont line. However, the shortest route would have required the new lines to cross more private property and would have resulted in greater visibility from Route 761. Hence, Staff concurred that the proposed corridor minimizes visual impacts, the impact upon other property owners, and the cost of the right-of-way acquisition.

Staff also reported that the significant economic impact associated with the project is not that of this project itself, but that it provides the essential interconnection for the Tenaska plant to the transmission grid thereby enabling the community to enjoy the economic benefits associated with that plant.[19] The Commission previously addressed the economic impact from that facility in its final order approving the plant.

[16] Id. at 5-6.
[17] Id. at 6.
[18] Id.
[19] Id. at 8.

Finally, Staff summarized the recommendations of the Department of Environmental Quality ("DEQ") as follows:

- Obtain all applicable environmental permits or approvals or exceptions prior to commencement of construction activities.
- Implement strict erosion and sediment controls during all land-disturbing activities in order to protect rare mussels in nearby streams.
- Conduct an environmental hazard investigation prior to construction, in order to ensure that there are no contaminated sites.
- Implement principles of pollution prevention.
- Conduct a cultural resources survey of the project area to identify the effects of the project on historical properties present in the area of potential effects.
- Maintain rights-of-way that are within 50 feet of streams or wetlands by mechanical means, not with herbicides.
- Protect trees in the project area by the methods recommended by the Department of Forestry.

Staff recommended the Commission approve the project, and that the DEQ recommendations be required as conditions to receiving the certificate. In Staff's opinion, the recommendations made by the DEQ coordinated review should not present any unreasonable obstacle to completion of the project.

The Company filed limited rebuttal testimony. In rebuttal testimony, Mr. Allen updated and clarified the record on the number of towers that would be needed for the transmission line based on recent routing information. He testified that five new towers for each of the 500 kV transmission lines, or a total of ten towers would be needed for the 0.63 mile section from the Dooms-Elmont line to the switching station, and one new tower for each of the two 500 kV transmission lines, or a total of two towers would be needed for the remaining 0.28 mile section to the plant. The Company therefore expects to construct a total of 12 new towers to support the two 500 kV transmission lines proposed. Further, he reported that the existing tower supporting the Dooms-Elmont line at the proposed tap would not be removed, but two angle towers would be installed within the existing span.[20]

Ms. Lamm also filed rebuttal testimony to address certain issues raised in the DEQ coordinated review. She reported that the Company routinely researches and obtains additional construction permits upon completion of the SCC's certification process and it remains fully prepared to conduct any necessary surveys and obtain any other approvals that may be required. She reported that the Company was aware that creek crossings and associated wetlands were of particular concern during the routing review and preliminary engineering studies. Tenaska conducted a wetlands study for the entire property and therefore once a survey is complete, the wetlands locations in the project area can be accurately tied in and shown. She reported that the Company would follow the DEQ recommendations for maintenance of rights-of-way within 50 feet of streams or wetlands, even though it was beyond the Company's normal practice and applicable

[20]Exhibit 4, at 1-2.

regulations.[21] She also reported that Virginia Power routinely exercises proper erosion and sediments control practices. Similarly she advised the Company agreed to the DEQ recommendations concerning protection of trees; however, she also noted that heavy equipment would be operated at the edge of the right-of-way during clearing operations and soil compaction may be unavoidable even with the recommended precautions.[22]

Finally, the DEQ coordinated review recommended that Virginia Power commission an environmental hazard investigation before construction to ensure that there are no waste-related issues or sites. Ms. Lamm reported that the review performed by the DEQ Waste Programs Coordination Division ("Waste Programs Division") located no contaminated sites that might affect or be affected by the proposed project; further, the Company has environmental policies and procedures in place to minimize environmental impacts, including proper use and disposal of waste materials generated as a result of construction activities. Accordingly, the Company contends there is no need for a complete Phase I environmental assessment on property the Company does not and will not own.[23]

DISCUSSION

Virginia Power must meet the requirements of Va. Code §§ 56-265.2 and 56-46.1 for approval of this project. Section 56-265.2 A requires the Commission to find the "public convenience and necessity" require the proposed facilities. It states that:

> It shall be unlawful for any public utility to construct. . .any facilities for use in public utility service, except ordinary extensions or improvements in the usual course of business, without first having obtained a certificate from the Commission that the public convenience and necessity require the exercise of such right or privilege.

Staff testified that it has been the Commission's practice to consider the construction of any transmission facility operating at or above 150 kV to be an extraordinary extension.[24] Therefore, approval of this project will require amending the existing certificate for the Dooms-Elmont line. Virginia Code § 56-265.2 C also requires a utility proposing an "ordinary extension or improvement" outside of its service territory to provide notice to the utility in whose service territory the extension is proposed to be built and file a map with the Commission showing the location of the line. Although the proposed lines are outside the Company's service territory, the statute only requires notice to the utility in whose territory the facilities are proposed for an "ordinary extension," outside of the applicant's territory. This project does not constitute an ordinary extension, was properly noticed, and was the subject of a public hearing. Nonetheless, Virginia Power notified CVEC, the public utility in whose territory the extension will be built, and filed a map with the Commission bearing a notation signed by a CVEC representative indicating that it had no objection to construction and operation of the project within its service territory.

[21] Exhibit 5, at 2.
[22] Id, at 3.
[23] Id, at 4.
[24] Exhibit 7, at 2.

Section 56-265.2 also requires overhead transmission lines of 150 kV or more to comply with the provisions of Section 56-46.1 of the Code which in relevant part provides:

> A. Whenever the Commission is required to approve the construction of any electrical utility facility, it shall give consideration to the effect of that facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impact. In order to avoid duplication of governmental activities, any valid permit or approval required for an electric generating plant and associated facilities issued or granted by a federal, state or local governmental entity charged by law with responsibility for issuing permits or approvals regulating environmental impact and mitigation of adverse environmental impact or for other specific public interest issues such as building codes, transportation plans, and public safety, whether such permit or approval is granted prior to or after the Commission's decision, shall be deemed to satisfy the requirements of this section with respect to all matters that (i) are governed by the permit or approval or (ii) are within the authority of, and were considered by, the governmental entity in issuing such permit or approval, and the Commission shall impose no additional conditions with respect to such matters. . . .In every proceeding under this subsection, the Commission shall receive and give consideration to all reports that relate to the proposed facility by state agencies concerned with environmental protection; and if requested by any county or municipality in which the facility is proposed to be built, to local comprehensive plans that have been adopted pursuant to Article 3 (§ 15.2-2223 et seq.) of Chapter 22 of Title 15.2. Additionally, the Commission (i) shall consider the effect of the proposed facility on economic development within the Commonwealth and (ii) shall consider any improvements in service reliability that may result from the construction of such facility.
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> B. . . .As a condition to approval the Commission shall determine that the line is needed and that the corridor or route the line is to follow will reasonably minimize adverse impact on the scenic assets, historic districts and environment of the area concerned. . .
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> C. . . . the public service company shall provide adequate evidence that existing rights-of-way cannot adequately serve the needs of the company.

Section 56-46.1 A thus requires the Commission to consider the effect of the project upon service reliability and to place conditions upon the project to minimize adverse environmental impact, and allows the Commission to consider the effect of the project upon economic development. The Commission also must receive and give consideration to reports by state agencies. Section 56-46.1 B directs the Commission to determine also that the line is needed and that the corridor or route will reasonably minimize any adverse impact on the scenic assets, historic districts, and environment of the area concerned. The statute goes on to provide, at § 56-46.1 C, that an applicant should provide evidence that existing rights-of-way cannot be utilized to adequately serve the need.

1. *Need*

Need must first be established, and the need in this case is clear and uncontested. The Commission has already found that the generation facility should be approved and has issued a certificate of public convenience and necessity. Additional transmission facilities are required to interconnect the Tenaska generating facility to the Virginia Power transmission system. The FERC requires interconnection when requested by a generation plant developer, and that request has been made here. Indeed, an interconnection agreement has been executed and filed with the FERC.

2. *Reliability*

The Company and Staff have also offered testimony that the interconnection will have no significant adverse effect on the reliability of the system. The Company completed a feasibility and impact study, and concluded that the requested interconnection could be accommodated by looping the Dooms-Elmont line through a new switching station. Staff reviewed the study completed by the Company, and reported that looping the line will have no significant adverse effect on the normal operation of the Dooms-Elmont line. The only reliability risk introduced by this project is that of a breaker failure within the ring bus at the new switching station, a rare failure according to the Company. Indeed, the Company reported that the Dooms-Elmont line has experienced an exceptional reliability history with only two forced outages, both momentary, in ten years. The Company expects the reliability of the line will improve on a per mile basis after the proposed construction is completed since any interruption would most likely affect only one segment of the new loop with the second segment remaining in service.

3. *Route*

The Company and Staff looked at several alternatives to the proposed project. Both concluded that there are several lower voltage options that must be rejected because the size of the Tenaska facility requires interconnection to a 500 kV line. The Company's standard 230 kV line design has a capability of only 800 MVA so an upgrade to a 230 kV line would still prove to be inadequate. Further, although the route selected is not the shortest route to the facility, it minimizes additional right-of-way required across private property. The majority of the proposed route utilizes Tenaska property. The small segment, only 0.15 mile, that will traverse private property has already been acquired by Tenaska from the single affected landowner.[25]

4. *Local & State Approvals*

The route was discussed with Fluvanna County officials who expressed no concern over the alignment. The DEQ also coordinated a project review by a number of state agencies and Fluvanna County which is discussed further below. The Company represents that it will acquire all necessary local and state approvals.

[25]Transcript 21.

5. *Environmental Impact*

Staff filed a copy of the coordinated Review and Recommendations submitted by the DEQ on May 24, 2002. Therein, the DEQ offered a number of recommendations and advised that several conditions should be imposed as part of the Commission's certificate. The Company filed rebuttal testimony to discuss its existing policies and efforts to utilize good environmental procedures. Generally, the Company agreed to comply with the DEQ recommendations.

The DEQ first recommends that Virginia Power obtain all applicable environmental permits or approvals prior to commencement of construction. Virginia Power advised that it routinely identifies regulatory needs and obtains all permits and approvals required for construction projects, and will do so in this case.

It was next recommended that strict erosion and sediment controls be implemented to protect rare mussels in nearby streams. Again, the Company agreed to comply with the erosion and sediment control recommendations, observing that it routinely exercises proper erosion and sediment control practices. Company witness Lamm provided a copy of the Company's specifications for general erosion and sediment control for transmission lines as approved by the Department of Conservation and Recreation.[26]

The Department of Cultural Resources recommends a cultural survey be conducted by a qualified professional to identify the full range of effects of the project on historic properties in the area, including architectural, archeological and historic aspects. Ms. Lamm agreed to conduct the cultural resource survey after the line survey is completed.[27] Virginia Power further agreed to maintain rights-of-way within 50 feet of streams by mechanical means. The Company also agreed to the measures recommended to minimize soil compaction and to stockpile soil away from trees to protect them, although Virginia Power cautioned that some soil compaction may still occur even with the precautions recommended by the DEQ.

In addition, the route did appear to cross a perennial stream and two intermittent streams that may have associated wetlands, therefore more detailed information will be collected when the route is surveyed, but the topography of the area should result in minimal impact on water resources.[28]

The DEQ, and particularly, the Waste Programs Division, noted that the Company's application did not address waste issues. It advised that it had conducted a "cursory" review of its data files and did not find any contaminated sites that might affect, or be effected by, the project, but it recommended that the applicant "commission an environmental hazard investigation before construction to ensure that there are no waste-related issues or sites."[29] It also recommended that the Company implement pollution prevention principles, including reducing solid waste at the source, and reusing and recycling materials to the maximum extent practicable.

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[26]Exhibit 5.
[27]Exhibit 1, at 2.
[28]Id. at 4.
[29]Exhibit 7, Attachment 3, at 3.

Virginia Power contends that it should not be required to commission an environmental hazard investigation before construction. It asserts that the area had been used for silviculture, or forestry, and the review by the Waste Programs Division identified no contaminated sites. Thus, the Company contends that there is no need for a complete Phase I Environmental Assessment on property it does not own. Virginia Power also contends that it has policies and procedures in place to minimize environmental impacts, including proper disposal of waste materials generated during construction.

At the hearing, Staff advised that the DEQ reviewed the testimony of Ms. Lamm and continued to support its recommendations in their entirety. Staff recommends that the Commission impose the DEQ recommendations as a condition to the issuance of a certificate of public convenience and necessity, and further advised that such recommendations should not be an unreasonable obstacle to the project. I concur. Virginia Power agreed with all recommendations except those of the Waste Programs Division. Yet, Virginia Power relies on the cursory review conducted by that division as evidence that it should not be required to conduct the recommended investigation, but that review was only a cursory look at the division's data files. The Waste Programs Division expects a more thorough review, and I will rely on the expertise of the agency charged with regulating in this area. I therefore concur that a more thorough review should be required. However, I also recommend that Virginia Power confer with the Waste Programs Division to determine the extent of the investigation that agency expects to be conducted.

Finally, Staff noted that a majority of the 12 tower structures needed for the lines appear to be well covered within the forested Tenaska facility site, and therefore, visual and residential impacts will be minimized. With the DEQ recommendations and the corridor or route proposed by the Company, the project will reasonably minimize adverse impacts on the scenic assets, historic districts, and environment of the area concerned.

6. *Economic Impact*

Finally, Staff confirmed that the project will have no adverse economic impact in the surrounding communities. The project itself will not contribute significantly to economic development. The construction period is expected to be short, most materials are expected to be obtained from outside the locality, and no local personnel will be retained during normal operation of the lines. However, the transmission lines will provide the required interconnection for the Tenaska generating facility, and the Commission has already reviewed evidence of the economic benefits to the community from that facility.

FINDINGS AND RECOMMENDATIONS

Based on the record received herein and the applicable law, and for the reasons set forth above, I find that:

1. The proposed transmission lines are necessary to interconnect the approved Tenaska facility to the Virginia Power transmission system;

2. The proposed lines will have no adverse impact on system reliability, and may increase the reliability of the Dooms-Elmont line on a per-mile basis;

3. The proposed route will reasonably minimize adverse impacts on the scenic assets, historic districts, and the environment of the area concerned;

4. The proposed route minimizes acquisition of additional right-of-way;

5. The proposed transmission lines will have no adverse impact on economic development in Fluvanna County;

6. Virginia Power should be required to comply with the recommendations made by the DEQ; and

7. The proposed project is in the public convenience and necessity and therefore should be approved.

Accordingly, I therefore ***RECOMMEND*** that the Commission enter an order that:

1. ***ADOPTS*** the findings in this Report;

2. ***GRANTS*** Virginia Power an amended certificate of public convenience and necessity for the Dooms-Elmont transmission line; and

3. ***DISMISSES*** this case from the docket of active matters.

COMMENTS

The parties are advised that any comments (Section 12.1-31 of the Code of Virginia and 5 VAC 5-20-120 C) to this Report must be filed with the Clerk of the Commission in writing, in an original and fifteen (15) copies, within twenty-one (21) days from the date hereof. The mailing address to which any such filing must be sent is Document Control Center, P.O. Box 2118, Richmond, Virginia 23218. Any party filing such comments shall attach a certificate to the foot of

such document certifying that copies have been mailed or delivered to all counsel of record and any such party not represented by counsel.

Respectfully submitted,

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Deborah V. Ellenberg
Chief Hearing Examiner